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ABSTRACT

This quinmester course outline includes a course description and rationale, objectives, an outline of content, evaluation suggestions, resources for students, and a bibliography. The course is suggested for prevocational students in grades 9-12. Course content ranges from a definition and background section, to preparation and handling and forming gem stones. At the end of the course the student should, among other things, be able to: 1) identify the work of several outstanding contemporary lapidists; 2) demonstrate the method of preparing and handling gem stones for tumbling and polishing; 3) demonstrate the method of gem tumbling and polishing; 4) demonstrate the method of gem cutting. Resources for students tools and equipment used for tumbling and cutting. Resources for students include books, periodicals, suggested places to visit, and professional schools, universities, and workshops specializing in lapidary. (JLB)

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AUTHORIZED COURSES OF STUDY FOR THE QUINMESTER PROGRAM

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ART EDUCATION
Gem Treasures
6681.23

DIVISION OF INSTRUCTION • BULLETIN 1Q • JANUARY 1972

DADE COUNTY PUBLIC SCHOOLS

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GEM TREASURES (Lapidary I)

(Tentative Course Outline)

6681.23

6682.23

6683.26

ART EDUCATION

Written by: Louis M. Marinaccio

for the

DIVISION OF INSTRUCTION
Dade County Public Schools
Miami, Florida
1971

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I. COURSE TITLE

GEM TREASURES (Lapidary I)

II. COURSE NUMBERS

6681.23

6682.23

6683.26

III. COURSE DESCRIPTION

Exploratory and creative techniques and processes in cutting, shaping, polishing and setting precious and semiprecious rocks and gems. Useful and decorative objects are produced by students.

IV. RATIONALE

Lapidary materials have occupied an important place in man's life for many centuries. Useful and decorative objects made from precious and semiprecious rocks and gems have been esthetically pleasing to individuals from the Neolithic period until the present. Industrial firms use gems for certain functions in manufacturing. Contemporary application of lapidary materials are as diversified as any material which is used creatively.

V. COURSE ENROLLMENT GUIDELINES

A. Pre-vocational

B. Recommended for grades 9-12

C. No prerequisite

VI. COURSE OF STUDY OBJECTIVES

Competencies expected of the student upon completion of the behavioral objectives of this course in writing or orally:

A. Definition and background

The student will be able to:

1. Define the term lapidary.
2. Identify the work of several outstanding comtemporary lapidists.

B. Preparation and handling of gem stones

The student will be able to:

1. Demonstrate the method of preparing and handling gem stones for tumbling and polishing.
2. Differentiate between the method of tumbling gem stones and the method of cutting gem stones.

C. Gem stone forming

The student will be able to:

1. Demonstrate the method of gem tumbling and polishing.

2. Demonstrate the method of gem cutting and grinding.

3. List the tools and equipment used for gem tumbling and gem cutting.

VII. COURSE CONTENT

A. Definition and background

1. Historical

a. Egypt

b. Ancient Near East

c. Asia

(1) India

(2) China

(3) Korea

(4) Japan

d. Classical

(1) Crete

(2) Greece

(3) Etrusca

(4) Rome

e. Byzantium (Rome)

f. Islam

g. Pre-Columbian

h. Renaissance in Europe

2. Contemporary

a. American Indian

b. Outstanding contemporary lapidists

(1) Leo Scherker

(2) Friedrich Becker

(3) Sigurd Persson

(4) George Jensen

(5) Erik Herlow

(6) Manuel Feli Via

(7) Elisabeth Treskow

(8) Jean Schlumberger

(9) Fulco duca di Verdura

(10) Margaret De Patta

(11) Rheinhold Reiling

c. Aesthetic reaction and movement

B. Preparation and handling of gem stones

1. Methods of preparing and handling gem stones for tumbling and polishing.

a. Cleaning

b. Sealing

c. Inspecting

d. Storing

2. Methods of preparing and handling gem stones for cutting and grinding.

a. Brushing

b. Cleaning

c. Inspecting

3. Selection of gem stones

   a. Select gem stones according to size.

   b. Select gem stones according to hardness.

   c. Hardness rated by Mohs scale 1-10.

   d. Gem stones generally tumbled are in the 5 to 8 hardness group.

4. Standard sizes for rocks (Clark scale)

   a. 1 millimeter or less - particle

   b. 1 millimeter to 1/8 inch - fragment

   c. 1/8 inch to 2-1/2 inches - pebble

   d. 2-1/2 inches to 10-1/2 inches - cobble

   e. Above 10-1/2 inches - boulder

5. Types of gem stones

Diamond	Scapolite
Spinel	Epidore
Topaz	Pyrite
Beryl	Nephrite jade
Zircon	Orthoclase
Rhodolite	Beryllonie
Pyrope garnet	Opal
Andalusite	Glass
Quartz	Lapis Lazuli
Peridot	Obsidian
Jadeite jade	Apatite
Idocrase	Kyanite

Hemetine	Serpentine
Fluorite	Amber
Azurite	Gypsum
Jet	Steatite (Soapstone
Calcite	Tale

C. Gem stones forming

1. Methods of forming

a. Gem tumbling and polishing

(1) Washing

(2) Breaking

(3) Loading

(4) Running: Rough Grind

(5) Removing

(6) Washing

(7) Reloading

(8) Running: Intermediate Grind

(9) Removing

(10) Washing

(11) Reloading

(12) Running: Fine Grind

(13) Removing

(14) Reloading

(15) Running

(16) Polishing

(17) Final washing

b. Gem cutting and grinding

(1) Washing

(2) Sawing - Slabling

(3) Scribing

(4) Trimming

(5) Grinding

(6) Dropping

(7) Sanding

(8) Polishing

(9) Drilling

c. Cabochon cutting

(1) Oldest technique

(2) Simplest cut

(3) Dome shape

(4) Opaque stone

(5) Translucent stone

(6) Varied geometric outlines

(7) Smooth surfaced

(8) Ranges in size and shape from a low, round, flat-based cabochon to a high-domed oval double cabochon.

d. Facet cutting

(1) Usually cut and polished into facets or flat planes.

(2) Reflect and transmit light

(3) Varied geometrical shapes

(4) Opaque stones sometimes faceted

2. Forming jewelry with a cabochon cutting.
3. Creating a ring with a facet cutting.
4. Creating a choker by combing facet and cabochon cutting.
5. Creating jewelry with gems which have been tumbled and polished.
6. Creating a variety of jewelry by using rough gem stones.
7. Forming jewelry by using tumbled and polished gem stones.
8. Equipment and tools

Combination polishing and sawing unit

Polishing felts

Grinding wheels

Tin laps

Rubber polishing wheels

Laps

Sanding discs

Diamond saw

Tin oxide

Carbo grains

Rouge

Tripoli	Dropping wax
Chrome oxide	Alcohol lamp
Dropping sticks	Electric drill
Soluble oil	Diamond drills
Facet head	220 Grit silicon carbide
Templet	Lapidary tumbler
Diamond dresser	Carbo grains
Wooden scrub brush	Bicarbonate of soda
Bench vise	Tin oxide
Plaster of paris	Tumbling barrels
Water soluble coolant	Mesh sieves

D. Lapidary suppliers

M. D. R. Manufacturing Company
4853 W. Jefferson Boulevard
Los Angeles 16, California

Graftool, Inc.
1 Industrial Road
Woodridge, N. Y.

Technicraft Lapidaries Corporation
3560 Broadway
New York 31, N. Y.

Vreeland Manufacturing Company
4105 N. E. 68th Avenue
Portland 13, Oregon

Diamond Sales Company
117 N. E. 1st Avenue
Miami, Florida

Gem-Hut Company
9848 Bird Road
Miami, Florida

Gemrock Unlimited
9848 Bird Road
Miami, Florida

Graves, Henry B. Company
2301 N. W. 8th Avenue
Miami, Florida

Rock and Shell Shop
2036 S. W. 57th Avenue
Miami, Florida

VIII. EVALUATION

It is essential to establish a criteria for evaluating the progress of the student in an art experience. Evaluation in lapidary art cannot be rigid to the extent that it will inhibit creative expression. Creativity is unique and personal.

The product itself cannot be evaluated without taking into consideration the process the student experienced from inception to completion. In addition, evaluation must include evidence of the growth of the individual in relation to his attitude, interest, ability to complete a project, how well he can use his past experience toward problem solving, respect for his own ability and the rights of others.

Evaluation is of vital importance to the student's development. It helps to determine the growth of the student so that the teacher can further motivate and guide the student toward his fullest self-development, creativity and aesthetic growth.

The criteria established for evaluation will vary due to individual differences among students and teachers. Each teacher must determine his own goals

and formulate standards for evaluation always keeping in mind that evaluation must be positive as well as constructive.

The following are some suggestions in setting up criteria for evaluation:

1. Has the student learned to evaluate his own gem stones as well as that of others with consideration to the sensuous quality of the gem form, and content?
2. Has the student designed the entire object with an awareness of space, form, movement, order, relationship of parts to the whole, and good color organization?
3. Has the student expressed his ideas creatively in the medium in an original and meaningful way?
4. Has the student developed a sensitivity to the material?
5. Does the student express his ideas and individuality in lapidary art?
6. Has the student become aware that texture results from an interaction of the medium and the tools?
7. Is the student aware of the difference between tactile and visual textures?

8. Has the student become sensitive to the expressive qualities of the different lapidary materials and tools?
9. Is the student aware that improper use of material and tools results in poorly constructed forms?
10. Is the student aware that variety can add interest to forms but too much can destroy it?
11. Does the student react empathically to the medium in terms of three-dimensional forms?
12. Is the student familiar with good lapidary art of the past and present?
13. Is the student able to identify from contemporary lapidists the ways in which the craftsmen manipulate their tools and materials?
14. Has the student developed good work habits?
15. Has the student's behavior outside the art class improved as a result of his art experience?
16. Has the student developed a respect for his personal ability?
17. Has the student developed a respect for the rights of others?

18. Has the student acquired increased efficiency in handling materials and tools?
19. Has the student developed the ability to carry the project through to completion?
20. Has the student learned the firing process and how to use it to its fullest advantage?
21. Has the student developed good craftsmanship and yet retained the natural qualities of the gem stone?
22. Has the student learned to cut a gem stone correctly so it does not warp or crack?
23. Is the product suited for the purpose for which it was made?
24. Does it incorporate the principles of good lapidary design?
25. Is the product the one best suited for work in lapidary art?
26. Is the product well-constructed?
27. Does the product indicate individuality and expressive quality?
28. Does the design fit the form?
29. Has the student improved in attitude, interests, and development of technical skills?

IX. RESOURCES FOR PUPILS

A. Books

Quick, Lelander and Leiper, Hugh, Gemcraft, Philadelphia: Chilton Book Co., 1968.

O'Brien, Dan, How to Cut Gems, California: Harmon Press, 1953.

Anderson, B. W., Gem Testing for Jewelers, London: Heywood and Co., Ltd., 1947.

Baerwald, Marcus and Mahoney, Tom, Gems and Jewelry Today, New York: Marcel Rodd Company, 1949.

Baxter, William, Jewelry, Gem Cutting, and Metal Craft, New York: McGraw-Hill, 1950.

Choate, Sharr, Creative Casting, Jewelry, Sculpture, New York: Crown Publishers, 1966.

Crawford, Thomas, Introducing Jewelry Making, New York: Watson-Guptill Publications, 1968.

Darling, A., Antique Jewelry, New York: Century House, 1953.

Drake, Dr. E. H., and Pearl, R. M., The Art of Gem Cutting, Portland: Mineralogist Publishing Company, 1945.

Evans, Joan, A History of Jewelry 1100-1870, New York: Pitman Publishing Company, 1953.

Gentile, Thomas, Step-by-Step Jewelry, New York: Golden Press, 1968.

Kraus, E. H., and Slawson, C. B., Gems and Gem Material, New York: McGraw-Hill, 1947.

Newble, Brian, Practical Enameling and Jewelry Work, New York: Viking Press, 1967.

O'Brien, Dan, How to Cut Gems, California: Harmon Press, 1953.

Quick, Lelande and Leiper, Hugh, Gemcraft, Philadelphia: Chilton Book Company, 1968.

Shipley, Robert, M., Dictionary of Gems and Jewelry, Los Angeles: Gemological Institute of America.

Sinkankas, A., Gem Cutting, a Lapidary's Manual, New York: D. Van Nostrand Co., 1955.

Sperisen, Francis, J., The Art of Lapidary, Milwaukee: Bruce Publishing Company, 1950.

Williams, Daniel, Gem Cutting, Peoria: Manual Arts Press, 1948.

Von Neumann, Robert, The Design and Creation of Jewelry, Philadelphia: Chilton Book Company, 1961.

B. Suggested periodicals for pupils

The Lapidary Journal
Del Mar, California

Craft Horizons
29 West 53rd Street
New York, N. Y. 10019

School Arts
50 Portland Street
Worcester, Mass. 01608

Design Quarterly
1710 Lyndale Avenue
Minneapolis 3, Minn.

C. Suggested places to visit

Grove House School of Art
3496 Main Highway
Coconut Grove, Fla. 33133

Village Corner Gallery
1136 South Dixie Highway
Coral Gables, Florida

Lowe Art Museum
1301 Miller Drive
Coral Gables, Florida

Miami Art Center
7867 North Kendall Drive
Kendall, Florida

Ceramic League of Miami
7867 North Kendall Drive
Kendall, Florida

Miami Museum of Modern Art
381 N. E. 20th Street
Miami, Florida

Grove House Gallery
3496 Main Highway
Coconut Grove, Florida

Museum of Science-Planetarium
3280 South Miami Avenue
Miami, Florida

Fairchild Tropical Garden
10901 Old Cutler Road
Coral Gables, Florida

Fantastic Gardens
9550 S. W. 67th Avenue
Miami, Florida

Miami Seaquarium
Rickenbacker Causeway
Virginia Key, Florida

Crandon Park Zoo
Key Biscayne, Florida

Scholastic Art Awards Exhibition
Burdine's Department Store
27 East Flagler Street
Miami, Florida

Miami Studio Shop
2363 West Flager Street
Miami, Florida

Bass Museum of Art
2100 Collins Avenue
Miami Beach, Florida

Japanese Gardens
MacArthur Causeway
Miami, Florida

D. Professional schools, universities, and workshops specializing in Lapidary

University of California
Department of Design
234 Wurster Hall
Berkeley, California

University of California
Davis, California

Mills College
Oakland, California

San Jose State College
San Jose, California

California College of Arts & Crafts
5212 Broadway at College Avenue
Oakland, California

University of Colorado
School of Art
Denver, Colorado

The Corcoran School of Art
17th Street at New York Avenue., N. W.
Washington, D. C.

School of the Art Institute of Chicago
Michigan at Adams
Chicago, Illinois

University of Illinois
College of Fine & Applied Arts
143 Fine Arts Building
Urbana, Illinois

Haystack Mountain School of Crafts
Deer Isle, Maine

Boston Museum School
230 Fenway
Boston, Massachusetts

Rochester Art Center
320 East Center
Rochester, Minnesota

Neward Museum of Art
43-49 Washington Street
Newark, New Jersey

Brooklyn Museum Art School
Eastern Parkway
Brooklyn, New York

Craft Students League
840 Eighth Avenue
New York, N. Y.

The New School for Social Research
66 West 12th Street
New York, N. Y.

School for American Craftsmen
Rochester Institute of Technology
65 Plymouth Avenue, South
Rochester, New York

Syracuse University
School of Art
309 University Place
Syracuse, New York

Penland School School of Crafts
Penland, North Carolina

Cleveland Institute of Art
11141 East Boulevard
Cleveland, Ohio

Rhode Island School of Design
Providence, Rhode Island

Museum School of Art of Houston
1001 Bissonnett
Houston, Texas

Wisconsin State University
River Galls, Wisconsin

X. BIBLIOGRAPHY

Anderson, B. W., Gem Testing for Jewelers, London: Heywood and Co., Ltd. 1947.

Baerwald, Marcus and Mahoney, Tom, Gems and Jewelry Today, New York: Marcel Rodd., 1949.

Baxter, William, Jewelry, Gem Cutting, and Metal Craft, New York: McGraw-Hill, 1950.

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